

ABSTRACT

Disclosed are a transistor in the semiconductor device and method of fabricating the same. A gate oxide film is formed using a nitridation oxide film in a low voltage device region and a gate oxide film is formed to have a stack structure of a nitridation oxide film/oxide film/nitridation oxide film in a high voltage device region. An electrical thickness by an increased dielectric constant could be reduced even when a physical thickness of the gate oxide film is increased. The leakage current and diffusion and infiltration of a dopant into the gate oxide film or the channel region could be prevented. Furthermore, an electrical characteristic of the device could be improved by reducing the leakage current.